VII. Account of the Lansium and some other Genera of Malayan Plants. By William Jack, M.D. Communicated by Henry Thomas Colebrooke, Esq. F.R.S. and L.S.

Read January 21, 1823.
There are a variety of highly esteemed fruits, which may be considered as peculiar to the Malayan Archipelago, or what has been not unaptly denominated India aquosa, and are not to be found beyond its limits. Many of these are already well known; but there are others which have not yet fallen under the observation of botanists, or are only to be found described in the Hortus Amboinensis of Rumphius, which, though a work of wonderful accuracy and research, stands in need of illustration with reference to the progress that has been made in botanical science since the period at which it was written. Among these the Lanseh, the Tampooi, and the Choopa hold no undistinguished place, and the following account of these plants will therefore not be uninteresting. The first is already partially known from Rumphius, and Mr. Marsden's History of Sumatra, but its true place and family have hitherto remained doubtful. To these I have subjoined descriptions of a few other genera from the same interesting quarter, which appear to be new and to deserve notice.

## LANSIUM.

Decandria Monogynia. N. O. Meliacece Juss.
Calyx 5-partitus. Corolla 5-petala, petalis subrotundis. Tubus staminiferus globosus, ore subintegro, antheris decem inclusis. Ovarium 5-loculare, loculis 1-2-sporis. Stylus brevis, columnaris. Stigma planum, 5-radiatum. Bacca corticata, 5-locularis, 5 -sperma, uno alterove loculo tantum semen perficiente. Semina integumento exteriore pulposo sapido. Albumen nullum; cotyledonibus inaqualibus peltatis.

Arbores, foliis pinnatis, floribus racemosis.

## Lansium domesticum.

Langsat or Lanséh. Malay.
Lansium. Rumph. Amb. i. p. 151. t. 54.
Marsden's Hist. of Sumatra, pl. v. p. 101.
Native of the Malay Islands.
A moderate-sized tree. Branchlets tomentose. Leaves alternate, pinnate ; leaflets from seven to nine, alternate, short, pedicelled, elliptic-oblong, broader above, rounded towards the point, and terminating in an obtuse acumen, entire, very smooth; nerves pubescent beneath; from seven to ten inches long. The young leaves are pubescent on the under surface. Stipules none. Racemes springing from the trunk and naked branches, sometimes solitary, sometimes fascicled, at first suberect, but drooping afterwards by the weight of the fruit ; tomentose: flowers sessile, alternate, solitary, tribracteate at the base. Calyx deeply five-parted; segments round, concave, imbricated. Corolla five-petalled, yellowish, a little longer than the calyx; petals subrotund. Staminiferous tube sub-globose; mouth nearly entire; an-
thers ten, inserted within the tube. Ovary five-celled ; cells containing a single or double ovulum attached above to the inner angle. I have never observed two distinct ovula; but the single one is often marked with a furrow, as if composed of two united together. Style short, thick, columnar, tenfurrowed. Stigma flat, obscurely radiated. Berry of a yellowish colour, cortical, seated on the persistent calyx, oblong-ovate, or oval, slightly tomentose, five-celled, fiveseeded. Seeds enveloped in a white semi-transparent pulpy tunic or aril, exalbuminous; cotyledons solid, conform to the seed, unequal, irregularly transverse, peltate ; the short pilose radicle being inserted into their centre. Two seeds are frequently contained in one common integument, so firmly united as to appear but one, until by dissection the two radicles and four irregular cotyledons are discovered. There are seldom more than one or two cells in each fruit that perfect their seed; the others are only filled with the white transparent pulp.

## Var. $\beta$. L. aqueum.

Foliolis subtus villosis, racemis densis sæpius solitariis, fructibus globosis.
Ayer Ayer. Malay.
The Ayer Ayer so nearly resembles the Lanséh in most particulars, that I hesitate to rank it as a distinct species, and content myself with mentioning it as a permanent and well-marked variety. They are principally distinguished by the Malays by their fruit, that of the Ayer Ayer being rounder, and the pulp more watery (whence the name), and dissolving more completely in the mouth than that of the Lanséh. Both are highly esteemed by the Malays, and are equally agreeable to the European palate.

The juicy envelope of the seeds is the part eaten, and the taste is cooling and pleasant.

This genus has hitherto been known only from Rumphius's figure and description, and its place in the system has therefore continued uncertain. From an examination of the fruit, M. Correa de Serra conjectured it to be intermediate between the families of Aurantice and Guttifera, but the structure of the flower determines its true place to be among the Meliacea.

I have further met in the forests near Bencoolen with a tree which appears to agree very nearly with the Lansium montanum Rumph. Amb. i. p. 154. t. 56. It differs in the number of the stamens, styles and seeds from the Lansium described above, but agrees with it exactly in carpological structure and in general habit. Its characters coincide very nearly with those of Roxburgh's Milnea. They are as follow:
Flowers small and inconspicuous. Calyx five-parted. Corolla five-petalled. Stamineous tube subglobose, entire at the mouth; anthers five, within the tube. Styles two. Stigmas two, simple. Berries globose, about the size of the domestic Lanséh, 1-2-celled, 1-2-seeded. Seeds enveloped in a thin subtransparent pulpy tunic or envelope, which has somewhat the flavour of the Lanséh, but with a bitterish and rather disagreeable smell. Carpology as in the L. domesticum.

The leaves are pinnate with about seven leaflets, elliptic-oblong, broader above and narrowing to the base, terminating in a long obtuse acumen, entire, very smooth. Petioles sprinkled as well as the branchlets with ferruginous pulverulent tomentum. Stipules none. Panicles axillary or supra-axillary, shorter than the leaves, composed of a few short branches with small greenish flowers.

Milnea

Milnea is perhaps scarcely distinct from Lansium ; but if admitted as a separate genus, the above will constitute a second species, differing from M. edulis Roxb. in being digynous, and may be denominated M. montana.

## HEDYCARPUS.

Tetrandria Monogynia.
Perianthium 4-partitum, inferum. Stamina 4. Ovarium 3-loculare, loculis disporis. Stigmata tria. Capsula baccata, 3-valvis, 3-locularis, seminibus arillo sapido tunicatis. Embryo inversus, albumine inclusus. Arbor foliis alternis simplicibus, floribus racemosis.
The stamens are occasionally five in number, with a five-parted perianth and four-celled ovary.

## Hedycarpus Malayanus.

Bera Tampui. Malay.
Sumatra.
A small tree. Branchlets smooth. Leaves alternate, petiolate, broad-ovate, rounded at the base, acuminate, nearly entire, with recurved edges, sometimes obsoletely crenulate, very smooth, deep green and shining above, and paler beneath, strongly nerved; from nine to ten inches long. Petioles thickened at both ends, from two to two inches and a half long. Stipules ovate, acute, deciduous. Racemes principally from the trunk and larger branches, but sometimes axillary, fascicled or solitary, straight, from two to three inches long; pedicels supporting several flowers, tomentose. Bracts on the pedicel below its subdivision, small, broad. Perianth small, yellowish, villous, somewhat fleshy, four-,
sometimes five-parted; segments narrow. Stamens four, sometimes five, alternate with the segments of the perianth, short; anthers roundish, two-lobed. Ovary small, three-, sometimes four-celled; each cell containing two ovula attached to the inner angle. Style scarce any. Stigmas three, sometimes four, fleshy, villous. Fruit about the size of a China orange, with a thick rough rind, three-valved, threecelled ; cells generally two-seeded, partitions opposite to the valves. Seeds enveloped in a white juicy aril, as in the Lansium, \&c. Embryo contained in an ample albumen inverse. Cotyledons flat, foliaceous, cordate, subrotund. Radicle superior, short, clavate.
$\mathrm{Obs}_{\mathrm{bs}}$. This is a fruit which ranks in point of taste and flavour along with the Lanséh, \&c., but is by no means so frequently met with. The genus is most nearly allied to Picrardia of Roxburgh, with which it agrees in general habit, in foliage, in the mode of inflorescence, and in the structure of the seeds, but differs in having a valvular fruit and in the number of the stamens. The following description of the Choopa, another highly esteemed Malayan fruit, which belongs to Pierardia, will illustrate the affinity between these two genera.

PIERARDIA. Roxb.
Perianthium 4-partitum. Stamina octo, brevia. Ovarium 3-loculare, loculis disporis. Stigma trifidum. Bacca corticata, trilocularis, loculis 1-2-spermis. Semina arillo sapido tunicata. Embryo inversus albumine inclusus. Arbores, floribus racemosis, foliis alternis simplicibus.

## Pierardia dulcis.

Monoica, foliis obovatis.
Bua Choopa. Malay.
Sumatra.
Ihis is a middle-sized tree. Leaves crowded at the ends of the branches, alternate, petiolate, obovate, or elliptic-obovate, rounded at the top, with a short blunt acumen, entire, smooth, flat; from eight to nine inches long. Petioles thickened and jointed above and below. Stipules ovate, deciduous. Racemes from the naked branches. Male and female flowers in distinct racemes ; in the former the pedicels are generally three-flowered; in the latter one-flowered. Bracts small.
Male. Perianth four-parted, spreading, yellowish, tomentose within, very slightly so without. Stamens eight; flaments very short; anthers two-lobed. Ovary abortive.
Female. Perianth considerably larger than in the male, divided to the base into four long thick lobes; sometimes there is a fifth. Stamens none. Ovary subglobose, three-celled ; cells two-sporous. Style one. Stigmas three, spreading, fleshy, hispid. Berry subglobose, larger than a cherry, of a yellowish colour, three-celled ; cells generally one-seeded. Seeds enveloped in a white pulpy aril or tunic. The embryo is inverse, with flat cotyledons in the centre of an ample albumen.
Obs. This species differs from that described by Roxburgh in being monoecious, in the form of the leaves, and in the colour of the fleshy aril. The Rambeh, of which Mr. Marsden has given a figure in his History of Sumatra, pl. vi. $p$. 101. so nearly resembles this, that I think it can only be a variety of the same. The Rambeh belongs to the penin-
sula of Malacca, and is unknown at Bencoolen; while the Choopa, which is abundant at the latter place, is not found in the former. The racemes of the Rambeh are longer and the fruit smaller than in the Choopa; but a comparison and examination of the two would be necessary to ascertain whether there are any essential differences, and I have not had an opportunity of doing this.

## LEUCONOTIS.

Tetrandria Monogynia. N.O. Apocinea. Br.
Calyx inferus, 4-partitus. Corolla tubulosa, superne angustior, limbo 4-lobo. Stamina 4, inclusa, laciniis corolla alterna. Ovarium simplex, biloculare, loculis disporis. Stylus 1, brevis. Stigma annulatum, apice conico. Bacca 1-3sperma. Semina exalbuminosa, embryone inverso.
Frutex lactescens, foliis oppositis exstipularibus, floribus dichotome corymbosis axillaribus.

## Leuconotis anceps.

Akar Morai. Malay.
Sumatra.
A large shrub. Branchlets four-sided, sprinkled with elevated dots. Leaves opposite, petiolate, oblong, rounded at the base, rather long-acuminate, entire, a little waved at the edge, very smooth, shining above, paler and sprinkled with elevated dots beneath; nerves connected by submarginal arches; about four inches long. Petioles about an inch in length, carinate, connected by a ridge. Stipules none. Peduncles axillary, two-edged, longer than the petioles, bearing a dichotomous corymb of yellow flowers. Bracts small, vol. xiv.
acute, broad at the base. Calyx erect, four-parted, segments rather obtuse, margins membranaceous. Corolla, tube long, gibbous at the base, narrowing upwards ; lobes of the limb ovate. Stamens four, inserted on the middle of the tube, incluse ; filaments very short; anthers long, linear, subsagittate at the base. Style reaching to the insertion of the stamens. Stigma conical, with a prominent ring. Berry superior, ovate, somewhat flattened at the base, smooth, marked near the point with four prominent lines, containing from one to three seeds, the fourth generally abortive; when cut it exudes a great deal of milky juice. Seed ellip-tic-oblong, exalbuminous. Embryo inverse, conform to the seed. Cotyledons plano-convex, the plane sides having a reciprocal concavity and convexity, and being a little crisped towards the edges; they are deeply cordate above, the auriculate lobes overlapping each other. Radicle superior, oblong.
Obs. This singular plant belongs without doubt to the family of the Apocynea, with which its general appearance and habit entirely correspond. It agrees with Cerbera in having exalbuminous seeds; but its ovary is simple like that of Ca rissa; it will therefore hold an intermediate place between these two genera.

## MYRMECODIA.

Tetrandria Monogynia. N. O. Rubiacea.
Calyx subinteger. Corolla quadrifida tubo intus ad insertionem staminum piloso. Stamina quatuor, corollâ breviora. Stylus staminibus longior. Stigma simplex. Bacca ovata, quadrilocularis, tetrasperma.
Parasitica basi tuberosa, flores basibus petiolorum semitecti.

## Myrmecodia tuberosa.

Nidus germinans formicarum rubrarum. Rumph. Amb. vi. p.119. t.55. fig. 2.

Found at Pulo Nias.
This singular plant is found parasitic upon old trees; in the form of a large irregular tuber, from which arise a few thick, short, fleshy branches. The Leaves are crowded at the rounded extremities of these branches, and are opposite, petiolate, obovate-oblong, with a short acumen, attenuated to the petiole, entire, very smooth, somewhat leathery. Petioles long, roundish, inserted on a large persistent peltate knob, whose edges expand into a kind of stipule, ciliated along the margin with dense strigose fibres, and cleft above in the axil of the petiole. The flozers are sessile, closely disposed in the spaces between the stipular bases of the petioles and half concealed under their projecting edges. Calyx membranaceous, superior, nearly entire. Corolla white, tubular, quadrifid; segments erect, rather acute; a villous ring within the tube immediately below the insertion of the stamens. Stamens four, shorter than the corolla, and alternate with its segments ; anthers white, two-celled. Style longer than the stamens. Stigma simple, tomentose. Ovary fourcelled, four-seeded. Berry ovate, smooth, white with longitudinal lines, four-celled, four-seeded. Seeds furnished with albumen ; embryo in its axis.
Ors. There can be no doubt of this being the plant described by Rumphius, although the leaves are represented more acute in his figure than they are in my specimens.

## HYDNOPHYTUM. <br> Tetrandria Monogynia. N.O. Rubiacea: Juss.

Calyx integer. Corolla limbo 4-fido, fauce pilosâ. Stamina 4, brevia, fauci inserta. Stigma bifidum. Bacca disperma.
Super arbores parasitica, busi tuberosa, floribus axillaribus.
Hydnophytum formicarum.
Nidus germinans formicarum nigrarum. Rumph. Amb. vi. p.119. t. 55. fig. 1.

Prio Hantu. Malay.
On trees in the forests of Sumatra.
This grows parasitic on trees in the form of a large irregular tuber, fastening itself to them by fibrous roots, and throwing out several branches above. The tuber is generally inhabited by ants, and hollowed by them into numerous winding passages, which frequently extend a good way along the branches also, giving them the appearance of being fistular. Leaves opposite, short-petioled, elliptic-obovate, nearly obtuse, acute at the base, very entire, very smooth, thick, with the midrib flattened, and a few inconspicuous nerves. Stipules interpetiolar, linear. Flowers axillary, sessile, generally aggregated on a double gemmaceous knob. Calyx superior, very short, entire. Corolla white, tubular; limb four-cleft; faux villous. Stamens alternate with the segments of the corolla; filaments scarce any. Ovary crowned with a prominent umbilicate disk, disporous. Style longer than the tube. Stigma of two revolute linear thick lobes. Berry of a semipellucid reddish-yellow colour, ovate-oblong, two-seeded. Seeds oblong, contained in a tough integument, with the embryo in the axis of the albumen.

Obs. I am not aware that these two plants have been described by any botanist since the time of Rumphius, or that any conjecture has been made regarding their place and family from his figure or description. From their common habit as parasites, I should have been much inclined to place them under one genus; but the different number of seeds in each, supported by the difference of a simple and bifid stigma, seems to oppose this, while the distinction is further confirmed by the different disposition and insertion of the leaves, which in Hydnophytum are arranged precisely as usual in the Rubiacea, but in Myrmecodia are crowded round the thick fleshy branches in such a manner, that their being really opposite is not immediately apparent, while their insertion on their broad peltate bases is further peculiar.

## LASIANTHUS.

Rubiacea. Juss.
Calyx 4-partitus, laciniis linearibus. Corolla infundibuliformis, pilosa. Stamina 4. Stigmata 4, linearia, crassa. Bacca tetrapyrena.
Suffritices, floribus axillaribus, bracteis oppositis, baccis cyaneis.

## Lasianthus cyanocarpus.

Villosus, bracteis magnis cordatis. Found at Tappanooly on the west coast of Sumatra.
Stem herbaceous or suffrutescent, erect, round, villous. Leaves opposite, petiolate, oblong-lanceolate, acute, entire, villous ; three or three inches and a half long. Petioles short. Stipules interpetiolar, acute. Flowers generally three in each axil, nearly sessile, supported by two large opposite cordate bracts. Calyx superior, four-, sometimes five-parted; laciniæ linear, acute, pilose. Corolla yellow, tubular, funnelshaped,
shaped, pilose both externally and internally. Stamens four, sometimes five ; anthers oblong. Ovary crowned by a nectarial ring, four-sporous. Style as long as the stamens. Stigma of four thick linear divisions. Berry as large as a small gooseberry, of a transparent azure blue, pilose, its flesh spongy or farinose, containing four nuts or hard seeds.

## Lasianthus attenuatus.

Villosus, foliis supra glabris, bracteis lanceolatis. Found in the interior of Bencoolen.

Suffrutescent, erect. Branches alternate, long, spreading, round, villous. Leaves opposite, sub-bifarious and somewhat drooping, short-petioled, oblong, attenuated to the point, rounded or subcordate, and sometimes a little unequal at the base, nearly entire, but sometimes waved or obsoletely dentate on the margin ; smooth above, except on the nerves, which are pilose; softly villous beneath; from three to four inches long by about one broad. Petioles very short, villous. Stipules interpetiolar, acuminate, villous. Flowers axillary; nearly sessile, from three to four in each axil. Bracts two, opposite, lanceolate, acute, villous. Calyx four-parted, villous; segments linear, acute. Corolla yellow, tubular, pilose both within and without; limb four-parted. Stamens four; filaments short; anthers oblong, two-celled. Ovary pilose, crowned within the calyx by a prominent nectarial ring, four-sporous. Style one. Stigma of four thick linear divisions. Berry pilose, ovate, crowned with the calyx, smaller than in the preceding, becoming dyed of a dark blue, of which colour the hairs also partake, containing four oneseeded nuts. Embryo cylindrical, in the axis of the albumen.

## HELOSPORA.

Tetrandria Monogynia. Linn. Rubiacea. Juss.
Calyx 4-dentatus. Corolla tubulosa, limbo 4-partito. Stamina inclusa. Stylus 4 -sulcus, apice 4 -fidus. Stigmata quatuor. Bacca calyce coronata, polysperma, seminibus duplici serie cruciatim dispositis, nidulantibus, linearibus, parum curvis. Arborescens, glabra, pedunculis axillaribus uniforis," estivatione valvata.

Helospora flavescens.
Native of Sumatra.
A small tree. Leaves opposite, short-petioled, ovate-lanceolate, acuminate, very smooth, entire : from three to five inches long. Stipules interpetiolar, deciduous, acute; a line of ciliary hairs within them. Pediuncles axillary; solitary, oneflowered, shorter than the leaves. Bracts two, small, at the base of the ovary. Calyx superior, erect, four-toothed, persistent. Corolla yellow, tube much longer than the calyx ; mouth naked ; limb four-parted, spreading; segments oblong. Aistivation valvate. Stamens four, within the tube; filaments scarce any ; anthers linear, obtuse, flattened, twocelled. Ovary subglobose, four-lobed, crowned by a nectarial ring or disk, polysporous, not divided into cells, but having the ovula implanted in its substance and arranged in double lines in the form of a cross. Style composed of four connate threads, which diverge at top, somewhat longer than the tube. Stigmas four: Berry globose, with four rounded angles and furrowed between, crowned with the calyx, many-seeded. Seeds long, linear, inserted perpendicularly, and cruciately arranged in four double lines corresponding to the angles or lobes of the fruit.

Obs. The disposition of the seeds in this genus is very peculiar, and forms a good distinctive character.

## GLAPHYRIA.

Icosandria Monogynia. N.O. Myrtacea.
Calyx superus, quinquefidus. Corolla pentapetala. Bacca quin-que-locularis, polysperma; singuli loculi semina duplici ordine axi affixa.

Arbuscula, foliis alternis, floribus axillaribus.

> Glaphyria nitida.

Foliis obovatis obtusis.
Found on the summit of Gunong Bunko, or the Sugarloaf Mountain, in the interior of Bencoolen.

A small branchy tree, with very smooth reddish branchlets. Leaves alternate, short-petioled, obovate, obtuse, very entire; three-fourths of an inch or an inch long, very smooth and polished, very firm, coriaceous, shining-green above, pale and whitish beneath with depressed dots, almost veinless, the lateral nerves indistinct and not at all elevated. Petioles short, reddish. Stipules minute. Peduncles axillary, solitary, few-flowered; pedicels alternate, rather long, Bracts deciduous. Calyx superior, persistent, five-parted; segments oblong. Corolla five-petalled. Stamens numerous. Ovary five-celled, polysporous, crowned with a nectarial tomentose disk. Style one. Berry about the size of a pea, five-celled, many-seeded. Seeds arranged in a double series in each cell, attached to the axis.
$O_{b s}$. This is a very handsome shrub, having much the habit and foliage of the common Myrtle, but the leaves are smaller and firmer. Its character and appearance are alpine, and it
is only met with at liigh elevations; I found it on the summit of the Sugarloaf, and I am informed that it is almost the only shrub met with towards the top of the volcanic cone of Gunong Dempo in Passumah, where it is called Kayo Umur panjang, or the Tree of long Life, probably from its maintaining itself at clevations where the other denizens of the forest have ceased to exist. At Bencoolen an infusion of the leaves is drunk as a substitute for tea; and it is known to the natives by the name of the Tea Plant.
Glaphyria sericea.

Foliis lanceolatis acuminatis.
Found on Pulo Penang, an island on the western coast of Sumatra.

This is a moderate-sized tree; its leaves are lanceolate, longacuminate, entire, very smooth. Flowers few, on short leafy peduncles or branchlets, which spring from the axils of the upper leaves. The calyx, peduncles and bracteolar leaflets are sericeous, as also the young leaves and shoots. Corolla from five- to six-petalled. Stamens numerous. Ovary from five- to six-celled, polysporous.

## EXPLANATION OF THE FIGURES IN 'TAB. IV.

Fig. 1. Lansium domesticum.
$a$. The flower.
b. The same in front.
c. The stamineous tube.
d. The same laid open and expanded.
$e$. The ovary.
$f$. A section of the same.

Fig. 1. g. The fruit.
h. Transverse section of the same.
$i$. A double seed.
$k$. The same separated, showing the four cotyledons and two radicles.
l. A single seed.
$m$. The cotyledons separated.
Fig. 2. Leuconotis anceps.
a. The flower.
b. The corolla laid open.
c. 'The ovary and style.
d. Transverse section of the same.
e. The fruit.
$f$. Transverse section of a fruit containing three seeds.
g. Ditto containing a single seed.
h. A seed.
$i$. The cotyledon externally.
$k$. The same internally with the radicle.
Fig. 3. Helospora flavescens.
a. 'Ihe Hower.
b. 'The corolla laid open.
c. An anther enlarged.
d. The pistil.
e. The fruit ; a transverse section.
$f$. A seed.

